

Deep Decarbonization of the Electricity Sector in 2050: Generation Mix, Storage, and Prices

Dr. Paul Joskow

Elizabeth and James Killian
Professor of Economics at the
Massachusetts Institute of Technology



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11:00 a.m. - 12:30 p.m.

[Zoom Meeting](#)

Biography

Paul Joskow is the Elizabeth and James Killian Professor of Economics at the Massachusetts Institute of Technology (MIT) and President emeritus of the Alfred P. Sloan Foundation. Joskow has been on the MIT faculty since 1972, where he was the head of the MIT Department of Economics from 1994 to 1998 and director of the MIT Center for Energy and Environmental Policy Research from 1999 to 2007. Joskow became president of the Sloan Foundation in 2008 and returned to MIT in 2018.

At MIT his teaching and research areas include industrial organization, energy and environmental economics, competition policy, and government regulation of industry.

He is a past-president of the International Society for New Institutional Economics, a distinguished fellow of the Industrial Organization Society, a distinguished fellow of the American Economic Association, a fellow of the Econometric Society, a fellow of the American Academy of Arts and Sciences, a fellow of the Econometric Society, and a member of the Council on Foreign Relations. He has served on the boards of the New England Electric System, National Grid PLC, TC Energy, State Farm Indemnity, Exelon Corporation (current), Putnam Mutual Funds (current), and the Whitehead Institute for Biomedical Research.

Abstract

We analyze the optimal mix of generating technologies, storage technologies, and the resulting system costs and distribution of wholesale spot prices for a variety of binding CO₂ emissions constraints in 2050 for three U.S. regions.

The analysis uses an open-access capacity planning and dispatch model. The regions analyzed are Texas, the Northeast (New England and New York), and the Southeast (Georgia, Florida, Alabama, South Carolina, and TVA).

The regions were chosen to account for geographic variations in wind and solar irradiation resources, variations in demand attributes, and variations in regulatory and public acceptance for nuclear power. Implications for investment incentives, indicative planning, and retail rate design will be discussed.



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